Ditlevsen, E. CR Caelsberg 24: 31-37 (1944) A case of simple segregation in Saccharomyces italicus.

1:1 segregation of a morphological gene (L.) long dom. short cell type.

Spore lines are of two types & when they sporulate, they bud true (particularly ll). LL sporulate only rarely. Hybridization attempted L × l & yielded substantially the F_1, again segregating 1:1. L × L race; l × l fug.

Twombly, G.H., & D. Meesel, Cancer Research 6: 82-(1946) The growth of mammalian tumors in futile eggs. Ds a filtrable virus produced?

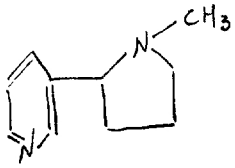
Rebsamana R39, Bagg mouse ca 755 + the RC mouse ca. were grown in futile hen's eggs.

Tumor producing activity could not certainly be dissociated from viable cells.

Dawson, R. Alkaloid formation in plants. Zoology Colloquium 3/6/46.

Tobacco alkaloids:

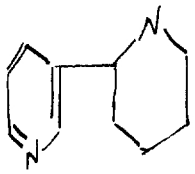
nicotine



nicotine

Nor-nicotine is demethylated nicotine.

nic + normic = fairly constant in various plants



Anabasine.

Also N-methyl anabasine

Nicotyrine is a 1'-2" ene - nicotine.

Pyridyl common; side group varies. A similar series in cinchona, cactus alkaloids.

Accumulation of nicotine in leaves is not modified by most procedures on leaves.

Grafting tomato top to tobacco roots ⇒ nicotine containing leaves + fruit.

Tobacco / tomato ⟶ no alkaloid

Solmssen, U.V. Chem. Rev. 37:481- 1946. Synthetic Estrogens & the relation between their structure and their activity.

Res. Labs
Hoffman La-Roche Inc
Nutley 10, N.J.

Mangenot, G. Rev. Cytol et Cytophysiol. Vég. 5:169-264 (1941)

Substances mitoclasiques et cellules végétales

Shemin, D. JBC 162:297-307 (1946) The biological conversion of l-serine to glycine.

Benzoic ac. and labelled comps. injected into rats, guinea pigs. N^{15} in hippuric ac. determined + comp'd c̄ that in the labelled injectum. The dilution factor was lowest for glycine (2.8, 2.4 resp.) and v. high for dl-glutamic (1500, 450...) NH_3 → 400, 20 resp. in the two spp. d-serine was rel. ineffective. l-serine was 5.5, 3.7. l-glutamic is 45, 10.

CH_2OH – C^*HN^* (crossed out)

CH_2OH | CHN^*H_2 | C^*OOH prepared. Ratio of $\frac{N^*}{C^*}$ in hipp glycine demonstrates the direct conversion and eliminates ethanolamine. Nor is $COOH$ | $CHNH_2$ | $COOH$ the intermediate, unless reversible deamination. N-benzoylserine ↛ hippuric.

Probably no reversible deamination c̄ glycine...

Luria, SE, Genetics 30:84- 1945. Mutations of bacterial viruses affecting their host range.

Coli B. Viruses α, r.

B/α, B/r ~~readily~~ obtained. Also B/αr. Also B/α, etc. morphovariants.

B/r more difficult.

r + B/r → 10^{-5} to 10^{-7} clear plaques. A new virus, active on B/r can be isolated. r'. r' can be obtained from single plaque isolates.

No virus active on B/α_1 found. But α → α' active on B/α_2, not active on B/α_1.

r' → a smaller plaque count on Br than B (.2 to .6) After absorption by Br the plating efficiency does not vary. This is not due to r' → r. It is likely that r' is less readily absorbed by Br than by B. r' interferes ≈ r. (Self-interference also likely).

α' is identical ≈ α on B. Plating efficiency .3 - .7 on $B\alpha_2$. Absorption is known

Delbrück analysis, ≈ complication of bacterial mutation to resistance e.g. multiplicates. Fluctuations → conclusion of mutation. Some cultures had a mutant population < smallest burst size indicating mutation in cell.

Serologic identity of α α α'; r + r' is established. Back. resistance independent: Bαr susc. to r'.

$B\alpha_1$ → $B\alpha_1 r'$ but was susc. to α

a mutant can be obtained from $B\alpha_1 r'$ → $B\alpha_1 r' \alpha$ resist. to α, r, r'

McDowell, –

Genetic factors – High incidence in C58. Incidence related to "amt. of inheritance" of leukemic strain. Genes vs. cytoplasmic elements.

F1 heterozygotes: differences in reciprocal hybrids. Maternal infl?!

Variability in F1 – isolates. F1 × P1(r). Low incidence (to ¼.) Still problem of segregation due to imperfect penetrance + masking of phenotype. Breeding tests essential. (Test of genotype)

Stoli = Little-Stone. "S"

RR × rr

↓

Rr. 1:1 ratios in progeny expected for monogenic inh.

Why backcross rather than inbred?? (resistant)

(Ask for experiments) C58. (7 generations) = isog?? (Selection??)

RR × rr

↓

Rr × rr

↓

Rr, rr test by × rr!!

S × C

↓

× SC × S♀

↓ Test progeny by mating to S♀. Variability in backcross.

F1s practically uniform, c̄ reduced incidence. ∴ non-genetic determ.

All crosses to high strains c̄ ♂♂. Nursing c̄ S ♀♀ inhibits leukemogenesis.

Planned as high, uniformity as possible.

Each ♂ × 10 ♀♀

N used on B albinos.

heterogeneity between families.

Effect on +/ls or homozygotes.

age or litter no?

P1 RR x rr

(Test # of genes??)

↓

F1 Rr x rr

↓

F2 Rr, rr. test. the progeny of these.

x rr. Some lines should have no leuk.
Some up to 50% leuk.

Variability found between ♂♂ in F-2

C – S differ in 3 genes on pigment. 2 correlated c̄ leuk.
transmission of a longevity factor from ♂♂. non sp. leuk

but had as much influence as leukemia...

Nurse effect greatest on ♂♂. Also ♂♂ — fighting; cystitis; Nurse improved competition + improved cystitis.

— Age of mother at parturition. (Stoli) Young → higher incidence.

50 families are not adequate for multivariate analysis.

Effect of nursing greater on hybrids. (Sex-linked factors)

Young removed as born.... Divided between 3 strains of nurses.

No mice got 1st milk) Everything fostered. 4/6 ♀s.

1. Reciprocal hybrids still vary. ♂-nursing produces in both crosses except in final % leukemia.

∴ B nurse, the cytoplasmic effect is much greater, and affects final rate.

Frejer, HC + JW Gowen, Genetics, 27:212 – (1942) Analyses of data on X-ray induced visible mutations in D. melanogaster.

Timoféef-Ressovsky's data indicate no significant direction of mutation, or mutability of any allele in the w series.

Kauffmann, BP, Genetics 27:537- 1942. Reversions from roughest to wild type in D. melan.

Sex-linked recessive. Accentuated at low temps. rst^3 flies are a mosaic of smooth + rough facets, rough part. in ♂♂. ~~Associated~~ c̄ a long inversion from rst to the right of bobbed. left break is in 3C2-3C4 region. rst^2 is allelic (see Grueneberg 1937).

Rst ♂♂ In(1) rst^3, rst^3 car bb c̄ 4000r x-rays and × yy females → revertants, which were sterile (~~heterozygous~~ hemizygous for inversion).

Then radiated ♂♂ × In rst^3 ♀♀. 21,104 F$_1$ ♀♀ examined.

171 were Rst phenotypically. 72 analysed. 25 sterile 7 lost 23 rst c̄ poor expression; 17 reversions. (ca. .4%).

16 had breaks in proximal heterochromatin of the In rst^3 X chrom. 4 were inversions; 2 also translocs. 7 recip. transl. 2 could be maintained as ~~[illegible]~~ homozygotes + were ♂ fertile. After two years some rst flies appeared again (s̄ cytological modification).

There exist some data that new arrangements have "weak" spots.

Other genes tested. No reversions of forked or pearl found.

Grunberg, H. J Genetics 34:169-89 1937 The position effect proved by a spontaneous reversion of the X-chromosome in D. melan.

Griffen, AB + WS Stone 1939. Reverse Mutations & the position effect. Gen 24: 73

The w^{m5} and its dev. J. Exp. 4032: 190-200

Sturtevant, et al., Gen. 24:88- 1939 Reversal of lethal factors.

Oliver, CP., PNAS 26:452-4 (1940) A recessive to wild type associ. & crossing over in D. melan.

Glossy (l_2^g) and Spectacle (l_2^s) are sex-linked, recessive, alleles of l_2; are in the dl-49 inversion.

l_2^g Bx / l_2^s f ♀♀ × l_2 ♂ Bx ♂♂, 11/5584 ♀♀ 26 ♂♂ 9 ♀♀ were wild type & dominant to l_2^g or l_2^s. The inversion was not bx.

Ten of the offspring were Bx. ∴ the crossing over occurs in the inversion, and has been shown to be between v and l_2.

The complementary type was not picked up. The only compound which counts is l_2^g / l_2^s

Robbins, Richard O., ChemRev. 38(2): 255 - 377 (1946.).

Metabolite Antagonists. ✓

Chemotherapy, American Cyanamid Co., Stamford Res. Labs., Ct.

Fosdick, L.S., et.al., JACS 68:840- 1946 Pressor Amines contg. nuclear Cl and F.

mil. Synthesis.

p F-styrene

HOCH — CH_2NHCH_3

Lwoff, A. JACS 68:835- 1946. The microbiological synthesis of riboflavin - a theory concerning its inhibition.

decomposition of B_2 increased by addition of Fe (.18-.36 mM/l)
do. decreased production by C. acetobutylicum. Traces of catalase + $Na_2S_2O_4$ incr. yield. H_2O_2 mechanism.

Tatarjet, R. Rev. Can. Biol, 5:9-47 (1946) L'effet biologique primaire des radiations et la structure des microorganismes.

K ✓

Wahl, R., Ann Inst Pasteur 72:73-80 (1946) Influence de la composition des milieux sur la bactériophagie.

B_1, Ca needed by some strains. Classic multiplication c̄ lysis.

Ramon, M + R. Latarjet, Ann Inst Pasteur 72:89 - 1946. Augmentation du nombre de bactériophages en présence de bactéries sensibles par irradiation.

S. paradysenteriae Y6R; phage C16. X-Rays 33kv 30cm H.

8 - 16000 r/min. 10^9 cells irradiated + given doses of 150 000 - 400 000 r (ρ S : 12, 32 resp!!) Tested for ability to take colonies + for titre of added phage.

Non-irradiated incl. from ~~5 x 10^3~~ 11 x 10^3 to 146 x 10^6 in 6 h. Irradiated ~~from~~ to 800 x 10^3. There was no increase in killed bacteria. After 4 h. in icebox, radiated bacteria did not support phage. 1 single c.d. / 200 bacteria would allow phage multipl. found. Increase in phage about same at 400 000 as 16 000 r.

Expl. on basis of growth giving giant forms.

Woolley, D.W. JBC 163:481- 1946. Reversal of the action of phenyl pantothenone by certain amino acids.

App. requiring ~~pt~~ pant are inh. reversibly by φ pnt. Sp. synth. pnt are not protected by it from φ pn. H.C. reversed φ pnt. Amino acids which were active were histidine, glut, prol, glyc + asp. S. cerevisiae. Similar results c̄ L. casei

Kirkwood, S + PH Phillips. JBC 163: 251 (1946). (Quantitative effect of γ-hexachlorocyclohexane.

S. cerevisiae.

bioactivated.

Carlson, J.G. Biol Bull 90:109- 1946. Protoplasmic viscosity changes in different regions of the grasshopper neuroblast during mitosis.

Whitelaw, W.L. PSEBM 61:420 - 1946 Portal vein ligation and the Eck fistula in the rat.

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